

Geopolitics of Artificial Intelligence: Assessing Pakistan's Strategic Autonomy in the Emerging Global AI Power Competition

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ABSTRACT

Artificial Intelligence or AI has become so integrated into our daily lives that it is already one of the factors that altered our understanding of geopolitics and the way we perceive the changes in the economy, security problems, etc. AI is now one of the most vital factors that can determine who is the winner in a global power rivalry, technological self-dependence and much more, as the superpowers - especially the US and China - are intensifying the competition. This work discusses the geopolitics of AI and the issue of Pakistan's strategic autonomy amidst the global AI competition. It is pointed out that AI is not simply a technology but rather an important factor in the power and independence of states in the era of digitalization. Pakistan is confronted with very big problems like lack of R&D, poor digital infrastructure, technology dependency, etc. However, it has chances through youth-led innovation, digital transformation, regional cooperation, etc. The paper employs a qualitative research method, first, to review the global AI competition and then to interpret Pakistan's role in it. The conclusion that a lack of a well-defined national AI policy in Pakistan will make the country more dependent on technology, thus losing its strategic autonomy is derived from the study.

INTRODUCTION

This rapid development of Artificial Intelligence (AI) is dramatically changing how international politics, economics, and security work. AI is very different from most other revolutions in technology as it will not only be changing the productivity of the industries or the efficiency of the communication it may even be the one changing the decision-making, the strategies of the military, the systems of governance and even the concept of state sovereignty (Kissinger, Schmidt, & Huttenlocher, 2021). Currently, AI stands as one of the major sources of power in the global system and this is creating a new form of geopolitics “technological geopolitics” where success is determined more and more by computational power, data possession, and algorithmic excellence rather than only having military power (Farrell & Newman, 2019).

The global race for AI supremacy is essentially a battle between the two superpowers, the United States and China. At the present time, AI is one of the main sources of power within the global system, which is causing a new form of geopolitics 'technological geopolitics' where individuals can win through computational ability, data possession, and algorithmic excellence more than by just having military power (Farrell & Newman, 2019). Global competition for AI leadership is by and large, a struggle between two superpowers, the United States and China. On the one hand, the United States leads the world in basic AI research, semiconductor technology, and the development of technology in the private sector through companies such as Google, Microsoft, OpenAI, and NVIDIA (Lee, 2018). On the other hand, China has quickly developed its AI strength by implementing industrial policies with the support of government, making large scale financial investments, and taking advantage of the massive data ecosystems created by its citizens and digital platforms (Segal, 2021). China's 'Next Generation Artificial Intelligence Development Plan' unveiled in 2017, unequivocally pointed to AI as a national strategic priority with the goal of making China the leader of the world in AI by 2030 (State Council of China, 2017). At the same time, the European Union, through the EU Artificial Intelligence Act and other initiatives, are trying to build ethical governance structures and establish a normative and regulatory presence, which is a sign of the rise of different models of AI governance in the world (European Commission, 2023).

One of the reasons behind the raising of the debate among various researchers about a new digital Cold War between United States and China is this escalating technological competition (Allison, 2017). the fact that AI is a great facilitator not only of economic rivalry but also military, cyber warfare, intelligence gathering and strategic influence operations is now a matter of public knowledge. The deployment of autonomous weapons, surveillance technology with predictive features, and cyber resources enabled by AI is radically altering the nature of warfare and national-level security (Scharre, 2018). Consequently, countries that do not have technological developments sufficiently may find themselves strategically isolated in the changing international order. Strategic autonomy is very much on the minds of

policymakers now because of the change in the geopolitical environment. Historically, a state's strategic autonomy referred to its capability to independently make and implement foreign and security policies without being coerced by others. However, nowadays, the concept of strategic autonomy includes technological sovereignty, data governance, and control over critical digital infrastructures (Bradshaw, 2020). Those countries which are highly dependent on foreign cloud systems, AI platforms, semiconductor technologies, and digital communication networks may find their policy independence restricted and even susceptible to external influence. Farrell and Newman (2019) term it "weaponized interdependence," where dominant technological states use global networks for geopolitical advantages. Pakistan is a prominent case in various ways. Being a nuclear state in South Asia and having a very strategic geographical location, Pakistan's geopolitics are mainly shaped by its ties with China, the U.S, Afghanistan, and especially India. Most of the time, Pakistan has been heavily depending on its conventional and nuclear deterrence; however, new factors like AI-based warfare and digital technologies are drastically reshaping the power relations in the region (Raska & Bitzinger, 2020). The expanding use by India of AI enabled systems for their armed forces, their enhanced cyber warfare capabilities, and digitized networks present even more strategic challenges for Pakistan, particularly because, technologically and economically, the former is way ahead of the latter. However, on the contrary, the Pakistani AI industry is still underdeveloped

Pakistan, at least, has figured out the strategic importance of AI at a fairly deep level. Besides government initiatives like Digital Pakistan Vision, the establishment of a National Centre of Artificial Intelligence (NCAI) reflects policy making shift toward technology progress (Government of Pakistan, 2023). Besides, Pakistan also has a very large youth population as a demographic dividend, which is getting more and more actively involved in information technology, freelancing, and digital entrepreneurship Pakistan's expansion in IT export industry and startup ecosystem demonstrates the possibility of how AI can be integrated into economic planning. Besides that, the China-Pakistan Economic Corridor (CPEC) is providing new avenues for Pakistan AI development. If it is involved in the technology partnership with China, Pakistan could be able to make good use of digital infrastructure, get surveillance technologies, and put up smart governance systems. On the other hand, such cooperation will raise issues about technological dependence and the possible consequences for strategic autonomy over time (Small, 2020). If the local innovators are not utilized and the country is heavily dependent on foreign technological ecosystems, it is quite possible that the independence of Pakistan in choosing its digital destiny could be a challenge that it cannot overcome. In fact, AI has the ability to change the very structure of Pakistan's governance and economic sectors. Significant developments in efficiency, productivity, and quality of services can be achieved by the use of AI based applications in agriculture, healthcare, urban planning, education, and public administration. For example, AI-powered crop monitoring systems can help in solving the food security problem; likewise, with the use of public health

analytics and predictive capability of disaster management can be greatly enhanced.

This paper reflects on the geopolitics of artificial intelligence and to what extent Pakistan would maintain its strategic independence in the global competition among AI superpowers. It contends that AI is no longer just a technological invention but a major factor of geopolitical power at a global level today. Along with the discussion about the pros and cons, it highlights the role of developing countries in discovering the path to their technological independence in an AI-dominated world order. Regulatory measures of the European Union, mainly the AI Act, are targeted to set the global benchmark of AI ethics and laws (European Commission, 2023). This is an article that clearly explains how Pakistan's policy, technical sovereignty and security concerns are influenced, to a great extent, also by the global competition of artificial intelligence. Floridi is quoted as saying along with Floridi (2018) in a paper that the main components of responsible AI governance lie in transparency, accountability, privacy, and human well-being. UNESCO (2023) together with the OECD (2024 and United Nations (2024) have also emphasized the need for global cooperation and unification of moral principles to mitigate the risks AI brings with her. If any such technology is to be employed in the context of a poor country, its use would be a real blessing as well as a great burden.

Research Methodology:

This study will follow qualitative research methods by using research articles, magazines, unpublished works, books, etc.

Research Significance

This paper is crucial because, besides identifying the role of Artificial Intelligence (AI) which is the primary factor for changes in geopolitics at an unprecedented speed globally, the paper also evaluates the extent of Pakistan's capabilities in maintaining strategic independence in an AI-dominated warfare scenario. As one of the modern-day problems, it essentially looks into technology and international relations from a point of view that AI can be a tool of economic, political, and military power. . In addition, the research provides Pakistan with practical policy guidance on digital sovereignty, national security, and technological up liftment. Furthermore, the paper highlights the problem of technological dependence on dominant powers and proposes the development of indigenous AI capabilities, digital infrastructure, research institutions, and innovation as ways of ensuring strategic and economic resilience far into the future.

Problem Statement

The fast pace of AI development has reshaped how economic, military, and technological power is distributed globally, placing AI at the heart of geopolitical rivalry today. While leading powers like the US and China keep expanding their AI capacities, countries such as Pakistan remain heavily reliant on foreign digital infrastructure, platforms, and computing resources. Even with Pakistan's geographic significance and efforts like the Digital Pakistan

Vision and the National Centre of Artificial Intelligence (NCAI), academic work exploring how this global AI race affects Pakistan's strategic independence remains scarce. Most existing literature centers on major-power AI development, leaving Pakistan's pursuit of technological sovereignty, dependency reduction, and coherent national AI policy under-examined. This study fills that gap by evaluating Pakistan's strategic standing, opportunities, and challenges within the shifting AI driven world order.

Research Questions

- In what ways is AI reshaping global geopolitics and power competition?
- What do the strategic consequences of the US-China AI rivalry mean for developing states?
- What opportunities and obstacles do Pakistan encounter in pursuing AI-driven strategic autonomy?
- How does reliance on foreign technology affect Pakistan's national security and digital sovereignty?

Research Objectives

- Explore how AI is reshaping present-day geopolitical rivalry
- Assess the US-China AI competition and what it means for the broader international system
- Examine Pakistan's AI capacity, potential, and structural obstacles
- Investigate how technological dependency shapes Pakistan's strategic independence

Scope of the Study

This research centers on the geopolitical dimensions of AI and Pakistan's strategic autonomy within today's global AI rivalry. It focuses mainly on the period from 2017 onward following China's Next Generation AI Development Plan and the intensifying US-China competition. Coverage includes AI governance, technological sovereignty, national security, digital infrastructure, economic competitiveness, and regional dynamics in South Asia. Technical aspects of AI algorithm development fall outside its scope; the emphasis instead is on political, strategic, economic, and security dimensions from an International Relations standpoint.

LITERATURE REVIEW

It turns out that being a powerful and strategic instrument is one of the main reasons why AI is hotly debated by many scholars from different disciplines such as international relations, security studies, political economy, and technological governance etc.

Mostly, scholars present AI as a wonderful motor that has the potential to completely disrupt the world order, alter military capabilities, and fundamentally alter the economic competitiveness of nations. A growing number of authors discuss the possibility that the presence of AI will lead to major conflicts on the international stage and that, similarly to how the Cold

War nuclear arms race defined an era, AI will become the major factor of international antagonism in the twenty-first century (Kissinger, Schmidt, & Huttenlocher, 2021).

The paper mainly discusses AI and the main world players who are at loggerheads, the US and China. Lee (2018) remarks that the most fundamental driver of AI competition is the thirst for data, computational power, and the innovative ecosystem. In his view, the US is the leader in the world in basic AI research and tech innovation through big players like Google, Microsoft, and OpenAI, on the other hand, China is ahead in the actual implementation of data-driven AI as a result of industrial strategies backed by the state and large-scale digital integration. Like this, Allison (2017) also states that the technological battle between the US and China is turning into a new form of strategic competition or a modern Cold War of technology in which both sides use different tactics to win the other over.

Researchers have mainly concentrated on the military applications of AI. For example, Scharre (2018) states that alongside autonomous weapons and AI enabled surveillance, warfare in the future will make use of predictive analytics and cyber warfare. AI plays a part almost always whether it is defense planning, intelligence gathering or military decision-making. China and India are, according to Raska and Bitzinger (2020), the country's most rapidly AI-arming their soldiers and this, to a large extent, changes the security situation in the region. Actually, the paper by these authors argues that the existence of technological discrepancies in AI capabilities will have enormous consequences on how deterrence and strategic stability would function in the future.

Dependency and autonomy in technology are also considerably addressed in the literature. Farrell and Newman (2019) while discussing "weaponized interdependence" theorize that countries with technologically advanced capabilities might use digital global networks and infrastructures for geopolitical purposes. Bradshaw (2020), furthering this point argues that in the digital era having control over data infrastructure, cloud systems, semiconductors, and AI ecosystems defines strategic autonomy. Besides, these kinds of research indicate that states which do not have domestic technology may end up being technological subjects of the few superpowers leading them losing their policy independence and sovereignty.

Besides geopolitical and security reasons, few more authors have discussed the economic and development questions of AI. Thus, for instance, Brynjolfsson and McAfee (2017) point out that AI powered automation affects not only the Utilization of labor in different regions of the globe but also the very manufacturing of goods and the historical changes of economies. They stress on the fact that nations which commit to research and development, digital skills, and technological infrastructure will be most likely to reap economic rewards. At the same time, developing countries lacking resources and capabilities for implementing AI in their development strategies might be left far behind. The World Bank (2024) also highlights that for the nations of the Global South, digital transformation and AI adoption are the only methods to ensure economic competitiveness that is sustainable over time.

Furthermore, the literature and debates regarding AI governance are just as significant. The way the European Union organizes the regulation of ethical AI has sparked a lot of attention among scholars as it is based on transparency, accountability, and the safeguarding of human rights (European Commission, 2023). The majority believe that governance will play a crucial role in determining the pace of AI adoption as well as the shape of future international technological standards. UNESCO (2021) points out that ethically producing AI is one of the ways to eliminate algorithmic biases, preventing the misuse of surveillance as well as addressing digital inequalities. The World Bank (2024) also draws attention to the fact that for the countries of the Global South, digital transformation and AI adoption are the only ways to ensure economic competitiveness that is sustainable in the long run.

Equally important are the writings and discussions on AI governance. The way the European Union frames the regulation of ethical AI has brought about a lot of attention among scholars as it relies on transparency, accountability and the protection of human rights (European Commission, 2023). Many think that the role of governance is going to be vital in determining how AI will be adopted and what the coming days' international technological standards will be like. UNESCO (2021) raises the same point referring to the ethical creation of AI as a way to avoid algorithmic biases, the misuse of surveillance and digital inequality.

Research on AI in Pakistan is very scarce and split, as far as Pakistan is concerned. Most of the research addresses broadly Pakistan's digitization, IT sector growth, and cybersecurity issues rather than AI geopolitics specifically. The government of Pakistan's Digital Pakistan Vision and the inception of the National Centre of Artificial Intelligence (NCAI) reflect the growing recognition by the state of the significance of AI (Government of Pakistan, 2023). These, however, are just a few of the aspects that scholars highlight Pakistan as experiencing besides other things. They include insufficient investment in innovation, limited digital infrastructure, shortage of skilled human resources besides weak research and development capacity (Qureshi, 2022).

A few papers highlight the role of the China-Pakistan Economic Corridor (CPEC) in fostering technological cooperation. On the one hand, being aligned with China may be the expedient way for Pakistan to get hold of digital infrastructure and advanced technology (Small, 2020). On the other hand, there are fears about becoming too dependent on foreign technological ecosystems and the consequences it will have for digital sovereignty. In fact, the argument raised in this exchange of views is in line with the concerns widely expressed by dependency theory which views developing countries as being technologically subordinate to dominant global powers (Dos Santos, 1970).

While the number of publications about artificial intelligence and geopolitics is increasing, the question of how much Pakistan can maintain its strategic autonomy in the global artificial intelligence competition remains to be a major piece of research. Most of the existing studies are focused on major powers while perspectives of developing states remain ignored. Besides that, scholars have hardly discussed how artificial intelligence simultaneously affects

Pakistan's national security, economic development, and technological sovereignty. This paper aims at addressing this gap by exploring Pakistan's positioning in the AI-led geopolitics and its evaluation of the possibilities and risks it holds towards achieving strategic autonomy.

While the existing body of literature offers considerable insight into artificial intelligence governance, military modernization, digital transformation, and the broader technological rivalry among major powers, it leaves substantial gaps when it comes to developing states. A large share of current scholarship gravitates toward the strategic contest between the United States and China, treating this bilateral rivalry as the central axis of global AI competition. Middle powers and developing countries, including Pakistan, receive comparatively little sustained attention, despite the fact that the consequences of this technological race extend well beyond the two dominant players. This imbalance in the literature means that the specific pressures, vulnerabilities, and policy choices facing smaller or less technologically advanced states remain poorly understood.

A further limitation is that much of the existing research approaches AI through narrow, disconnected lenses. Studies tend to examine either the security implications of AI, its economic dimensions, or its governance challenges, but rarely integrate these strands into a unified framework. This fragmented treatment makes it difficult to grasp how these dimensions interact in practice, particularly for a country like Pakistan, where security concerns, economic constraints, and governance capacity are deeply intertwined rather than separable.

Additionally, the relationship between technological dependence and strategic autonomy remains underexplored in the Pakistani context specifically. While dependency theory and related frameworks have long been applied to economic and military relations, their extension to the realm of digital and AI-related dependence is still emerging. Few studies systematically trace how reliance on foreign AI platforms, computing infrastructure, and digital ecosystems shapes Pakistan's foreign policy choices, national security posture, and long-term economic resilience. This is a significant oversight given the accelerating pace at which AI is being embedded into critical infrastructure, defense systems, and economic planning worldwide.

Consequently, there is a clear need for research that moves beyond isolated analyses and instead builds an integrated understanding of how AI-driven geopolitical competition affects countries situated outside the core US-China rivalry. This study responds to that need by offering a comprehensive geopolitical analysis of Pakistan's strategic autonomy within the emerging AI driven international order. It brings together security considerations, political economy perspectives, questions of technological sovereignty, and policy analysis within a single analytical framework, thereby addressing a gap that existing literature has largely left unfilled.

METHODOLOGY

This study uses qualitative and analytical methods, combined, to investigate the geopolitics of Artificial Intelligence in the context of Pakistan's

strategic autonomy and the emerging global AI power competition. It is a mainly exploratory and descriptive research project focusing on the way in which Artificial Intelligence (AI) influences interdependence, security, and technological sovereignty. Secondary data sources consist of academic books, peer-reviewed journal articles, policy reports, national publications, and international organization reports (World Bank, UNESCO, OECD, and UN). In addition, the study reviews official policy documents related to the major digital transformation initiatives in Pakistan, the Digital Pakistan Vision, and various reports of the National Centre of Artificial Intelligence (NCAI). An interdisciplinary combination of realism, dependency theory, and technological determinism concepts is adopted to explain the technological competition, power imbalances, and impact on weaker states, especially Pakistan. Although realism is employed to uncover AI-related security threats and power competition, the paper's main thesis (dependency theory) describes the level to which Pakistan is reliant on foreign technology providers. Technological determinism is employed to identify and assess the effects of technological changes on political and economic systems. In this regard, the research paper is not just qualitative and descriptive but it has a comparative analysis component to compare the potential of Pakistan to that of the leading global powers and regional challengers like India and China.

Research Design

This is a qualitative, exploratory study built on descriptive and analytical methods, drawing entirely on secondary sources peer-reviewed articles, academic books, government documents, and reports from bodies like UNESCO, the OECD, the World Bank, Stanford HAI, and the UN. Thematic content analysis is used to trace the links between AI, geopolitical rivalry, and Pakistan's strategic autonomy, while comparative analysis situates Pakistan's AI standing against major players, the US, China, and India. The study draws on Realism, Dependency Theory, and Technological Determinism as its guiding frameworks for understanding the ties between AI, dependency, and autonomy.

RESEARCH RESULT AND DISCUSSION

Artificial Intelligence (AI) has emerged as a critical factor of transformation globally. It promises a change so fundamentally that it could alter national relationships and power arrangements worldwide. We are witnessing an era when AI-aided machines are the main communication tools and channels of human connection. Cities have become knowledge centers where ideas are generated and shared; meanwhile, countries with insufficient technological abilities and restricted access to data will struggle to be part of the global AI wave. Agrawal, Gans, Goldfarb Among other things, AI is seen by the researchers as a prediction device, which might completely change how different sectors make choices. Consequently, countries that invest heavily in R&D and create top-notch digital ecosystems are likely to be among the best winners.

Though there is an abundance in the literature on AI's role in geopolitics the way in which small countries, as Pakistan for example, can keep their self-reliance in the midst of a technological arms race of the leading powers remains largely deciphered. As the number of such public debates grows rapidly, the topic of how countries such as Pakistan, without a strong AI base, will not allow themselves to become a mere pawn or victim of major nations engaged in the AI race is largely still out of sight. Therefore, this paper tries to address this gap by analyzing Pakistan's options, problems, and policy directions in the global race for AI supremacy.

In fact, IT is a significant factor in this context, along with other economic resources, that determine the comparative advantage of a country. Meanwhile, bodies throughout the world have thus far moved rather slowly in figuring out how to incorporate AI into their security strategies. Economic-wise, AI fueled automation is reshaping labor, production, and industrial competition (Brynjolfsson & McAfee, 2017; Acemoglu & Restrepo, 2019; Autor, 2022). Besides that, the subject of how to regulate AI has come to be an area of intense interest for scholars. Both the World Bank (2024) and UNDP (2023) point out that digital transformation has the potential to not only boost economic growth but also improve efficiency in the public sector. However, countries that do not possess technological capabilities may find themselves more dependent on foreign technologies. In the case of Pakistan, currently available literature highlights a number of substantial issues including low level of research and development, poor digital infrastructure, scarcity of skilled manpower, and lack of collaboration between academia and industry (Government of Pakistan, 2023; Qureshi, 2023). At the policy level, while the establishment of the National Centre of Artificial Intelligence and the Digital Pakistan Vision are clear steps towards addressing digital technology, the country is largely dependent on imported technologies and foreign digital ecosystems. Additionally, technological cooperation under the China-Pakistan Economic Corridor (CPEC) has brought about the possibilities of infrastructure development and technology transfer but, on the other hand, has also generated fears of continued dependence in the long run (Small, 2020). The most recent evaluation by the Stanford AI Index Report (2024) and the World Economic Forum (2024) show that AI capabilities worldwide continue to be concentrated in a limited number of highly advanced technological countries, which is making it almost impossible for developing nations to gain technological sovereignty

Global AI Power Structure and Emerging Technological Order

Increasingly a handful of technologically advanced countries are controlling the global artificial intelligence order and have made it very asymmetrical and concentrated. The US remains at the forefront of basic artificial intelligence research, semiconductor technology, and private sector technology development, in large part through Google, Microsoft, NVIDIA, and Opinion firms. While on the other hand China, with the means provided by its state-directed policy, access to large volumes of data, as well as the fact that AI is extensively employed in the governance, the surveillance, and the commercial areas, has proven itself to be a very strong contender (Lee, 2018).

The Sino-American rivalry, at times even gets referred to as a "digital Cold War" where the main battleground is AI and its related technologies. But it is important to note here that, unlike the Cold War with its definite opposing blocs and territories which were divided, technological competition is an intricate network involving world supply chains, cloud computing, and private businesses, etc., all being the part of this technological race. Also, it cannot be overlooked that the European Union is one of the powerful players in this sphere. By being the regulatory side of governance, through the implementation of the Artificial Intelligence Act, one of EU's aims is to establish higher ethical and legal standards for AI development (European Commission, 2023).

Nevertheless, this trio of innovation centers is simply aggravating the existing global technological disparity. Research in AI highly relies on exceptional computing facilities, large volumes of data and very strong research teams. These capabilities are usually limited to developed countries. In this respect, the problem of being dependent on foreign technology can continue to hinder technological development in countries of the developing world. Farrell and Newman (2019) as well as other academics argue that the divide between digital (infrastructure?) capabilities (they say "divides") may be used by the stronger players to their own benefit and at the expense of the weaker ones. Pakistan is really one of those countries which have very limited access to world technologies, so very few opportunities are available for it, which has become one limiting aspect of its global position at the moment. Pakistan is not a member of the main global artificial intelligence innovation ecosystem, so it has, to a great extent, the reliance on foreign technology regarding digital (IT?) infrastructure, cloud (computing), and software systems. It is, of course, lessening Pakistan's influence (voice?) on the formulation of global AI standards as well as its technological (independence?) sovereignty.

Pakistan's AI Ecosystem: Structural Strengths and Weaknesses

Pakistan's AI ecosystem is still evolving and along with strong points, there are also several challenges. For example, Pakistan has a large youth population, increasing internet penetration, and the IT export sector is growing. Another development is the introduction of freelancing platforms which have enabled the Pakistani experts to get directly involved with global digital marketplaces. This has been a major step towards their opening in the AI-based economy (UNDP, 2023). In addition to this, the government led initiatives such as the Digital Pakistan Vision and the setting up of the National Centre of Artificial Intelligence (NCAI) are a sign of the policymaker's identification of the importance of AI (Government of Pakistan, 2023). Universities are also gradually taking steps by admitting students in AI and data science programs, which can be expected to build up the human element over time.

On the contrary, the big structural problems are still unchanged. Pakistan's research and development expenditure are less than 1% of GDP, which is only a small part of that of the world innovators (World Bank, 2024) this lack of financial support leads to limitations in technological innovation, infrastructure development, and scientific research. On top of this, universities

in the country are not even close to having supercomputers or getting routine huge datasets, which are necessary for doing advanced AI research). Another very key limiting factor is the lack of cooperation between the academy and the industry. Where AI development is an asset, universities and industries cooperate to transform innovations into commercialized goods. The lack of a connection between industry and academy in the country not only slows down transfer of technology but also hinders the application of research results. On top of that, brain drain is still dashing the hope to have enough skilled AI professionals, and it is a factor that hinders domestic capacity building initiatives. Institutional fragmentation is yet another reason why it is difficult for the AI sector to develop. Even though there are initiatives here and there, Pakistan does not have a central national AI strategy that would harmonize education, defense, industry and governance. The silos lead to disjointed progress and the inefficiency of policy implementation.

AI, National Security, and Regional Strategic Balance

Artificial Intelligence (AI) has become essential in the evolution of military forces in the 21st century. AI technologies find their way in various aspects of military operations such as autonomous weapons systems, cyber warfare, surveillance, and intelligence analysis. The developments of conduct of warfare, which has been traditionally based on human planning and decision-making, ready to be transformed into a quicker, data-oriented, and algorithm-reliant domain (Scharre, 2018).

Deepening the most topical example of the use of AI in a military context, the strategic balance between Pakistan and India in South Asia is undergoing considerable changes due to the influence of AI. India is one of the countries that are firstly investing very heavily in the defense capabilities that have AI features. For example, India is using instead of human eyes drones fitted with surveillance cameras, software that can detect the enemies' intentions projections, and a spectrum of tools that can be used in cyber warfare. Such a modernization of the armed forces has been raising India's efficiency and strategic margin, and therefore the technological asymmetry between the two neighboring countries is getting higher (Raska & Bitzinger, 2020).

Strategic Autonomy, Digital Sovereignty, and Pakistan's Future Pathway

Strategic autonomy in the digital age is being predetermined by digital sovereignty, which emphasizes one having control over data, algorithms, cloud infrastructure, and technological ecosystems among other things. Traditionally, sovereignty meant a state's capability to regulate its technological environment without external interference. Now however, it is digital sovereignty that decides that capability. Pakistan is still technologically partially dependent. For example, its continued reliance on foreign cloud services, software imports, and the hardware ecosystems which come from outside are some of the aspects in which Pakistan lacks control over the digital infrastructure. This is in line with the views expressed in the article "weaponized interdependence" by Farrell and

Newman (2019) where they argue that the reliance on global networks, exposes a country to strategic vulnerabilities.

It is a huge opportunity for the China-Pakistan Economic Corridor (CPEC) to enable Pakistan to get stepwise technology through the upgrading of its infrastructure besides digital collaborations. On the other hand, Small (2020) and other scholars warn that an over-dependence on one single technological partner is a form of dependency resulting in loss of autonomy.

One of the most significant ways for Pakistan to achieve strategic autonomy is through a thorough national AI policy targeting research and development, digital infrastructure, and human resources education. Investing in AI education, data governance and innovation ecosystems can attract more international investors and at the same time reduce dependence on external entities. Another means of doing so is the international diversification of technological partnerships to avoid over-reliance risks.

The transformation of Pakistan from being technologically dependent to being selectively innovative is the last deciding factor whether or not Pakistan is able to align with the AI revolution. Nevertheless, irrespective of Pakistan achieving complete technological independence in the short term it should be still able to develop various forms of autonomy through agriculture, governance, cyber economy, and digital services. Such autonomy would not only be technically feasible but also of strategic value.

Findings

Studies indicate that the ascendancy of artificial intelligence (AI) from a mere technological tool to its now status as a geopolitical influencer, in the power play of great nations, one among the significant factors that will shape the international order is the emergence and proliferation of AI, a powerful technological weapon. This not only impacts a country's competitiveness, military power, but also technological sovereignty.

China and the US as two major players are shaping, through their competition, the global map of the AI revolution, thus resulting in a very limited and unbalanced technological order, in which the developing nations are the ones who do not get the full advantage. (Lee, 2018; Allison, 2017). Pakistan and other third-world countries are placed under the technological dominion of the big players who control technological resources, innovative environments, and digital infrastructures that very little are left to the other countries even for thinking about acquiring their full potential strategic autonomy in the area of AI.

The main focus of this paper is on the fact that Pakistan's AI sector is very nascent and on top of that facing countless issues such as insufficient funds to carry out research and development, poor digital infrastructure, weak academia-industry linkages, and lack of highly trained manpower in the field of AI (World Bank, 2024). Only very lately, the government has through Digital Pakistan Vision and the establishment of National Centre for artificial Intelligence (NCAI) showed their concern for and recognition of the importance of AI but still a lot of challenges are ahead of them that require to be solved if these programs are to be successful (Government of Pakistan, 2023).

The study points out that Pakistan's reliance on foreign technology is the biggest impediment to it achieving strategic independence. The reliance on imported software, cloud computing, top-of-the-line hardware, and digital platforms makes the country vulnerable to foreign control and restricts in being technologically independent. This corroborates the argument of Farrell and Newman (2019) that technological interdependence is a power that can be geopolitically used by technologically dominant countries.

Furthermore, the study dives into the security issues that AI poses to Pakistan since it is India that is leading in this domain along the lines of defense modernization, cyber warfare, surveillance, and intelligence operations. These have drastically changed the strategic face of South Asia as technology gaps which are further widened by India's defense investments in AI have signaled security issues for Pakistan. On the other hand, Pakistan's failure to utilize AI for defense and cybersecurity will over time weaken its strategic position unless counteractions are taken (Raska & Bitzinger 2020).

The findings reveal numerous areas where Pakistan can build on its current capabilities to more forcefully establish itself in the AI-led global order. For example, Pakistan has a quite young population, a flourishing IT sector, an increasingly digital economy, and technological cooperation under CPEC, among other things. These factors, if exploited correctly, could spur creativity, push up GDP, and even reduce reliance on foreign technology (Small, 2020).

In addition, this piece highlights the main threats to security that artificial intelligence would bring. Since India is a first mover and focusing on defense modernization, cyber warfare, surveillance and intelligence operations, these are greatly transforming the strategic situation in South Asia. As a result of a technology gap caused by India's defense AI acquisitions, the security of Pakistan has been predicted to be at risk. In addition, not only without the use of AI for defense and cybersecurity, Pakistan may very well be further damaging its strategic position (Raska & Bitzinger, 2020).

Simply speaking, the authors unraveled how strategic autonomy is interlinked with digital sovereignty (controlling data, algorithms, and technological infrastructure) which is a prime feature of power in today's world. Hence, Pakistan's road to a high level of self-reliance might be hinged to a great extent on their adeptness in the production of AI experts, increasing the number of research centers, enlarging human resources and having detailed AI regulatory frameworks (Bradshaw, 2020).

Sometimes you see that the country is so much focused on the defects or limitations of a particular sector that the real strength goes unnoticed. For instance, Pakistan and AI. With well-timed investments, structural changes, and a visionary strategy without time restrictions, the country can improve its global ranking. This cannot be achieved without a national AI strategy. To be effective, it must rest on innovation, technological self-sufficiency and sustainable digital development.

CONCLUSIONS AND RECOMMENDATIONS

AI is a major catalyst for changes in geopolitics in the present era. It has transformed the three main sources of power economic power, military power and technological sovereignty. The ongoing rivalry between the US and China, the world's two largest powers, serves as a case in point of how AI has transcended being merely a technological matter to becoming a strategic resource that shapes global influence and security. AI enabled systems being used by all countries, it's the proficiency in technology that has become the primary source of global influence in this century. The paper under discussion has dealt with the question of Pakistan's strategic independence in conjunction with the 21st century global AI power rivalry between the major powers. The research comes to the conclusion that Pakistan is even now facing major structural constraints which greatly retard its development and at the same time it is partly aware of the AI issues as evidenced by Digital Pakistan Vision and by the National Centre of Artificial Intelligence (NCAI). The challenges Pakistan is facing are mainly the absence of strong will for research and development, weak digital network, small number of skilled manpower and no cooperation between academia and industry. This paper also shows that AI over time is altering the security paradigm of Asia at the regional level. India's massive investment to leverage AI for updating its army and enhance cybersecurity could be considered as a potential strategic threat to Pakistan. Buying AI technologies from an indigenous source is not only an economic matter but also a national security issue. On the other hand, Pakistan is a potential of digital development despite the problems mentioned above. It has large pool of hardworking youth that can be trained in the rapidly growing IT industry that, in addition, enjoys the startup friendly environment. Moreover, with one of the most significant economic projects, CPEC, Pakistan can get substantial assistance in technology transfer. Furthermore, the above factors in concert, given the right continuous policy and investment, can enable Pakistan to successfully reposition itself in the global digital economy.

Therefore, in order to be strategically autonomous in a world dominated by AI, Pakistan need not only to be a consumer of the technology but also to become a producer and an innovator. For this, it is imperative to increase the research and development spending, enhance the digital infrastructure, and develop the human resources and formulate an AI national policy in the most comprehensive manner. Pakistan cannot take on the big AI superpowers alone but it does have the capacity in few sectors of technological sovereignty to command and carry out overall meaningful progress. Ultimately, Pakistan's economic resilience, secure borders and major geopolitical power are contingent upon its ability to effectively adjust and take advantage of this rapidly changing AI-driven world order.

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